National Institute of Environmental Health Sciences

Respiratory health effects of air pollution with particles and modification due to climate parameters in an exposed population: Long and short term study

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Year: 2011
Journal: International Journal of Energy and Environment. 5 (1): 102-112

Abstract:

Many studies have consistently found associations between respiratory health effects and various types of airborne particles. The goal of this paper is to examine the respiratory health effects of airborne particles exposure and modification due to climate parameters using a case-control retrospective investigation and a time series analysis of data obtained in the same area (Drobeta Turnu-Severin) and two time periods: study-part 1 (1.01.1990-31.12.1997) and study- part 2 (1.01.2000-31.12.2003). We investigated the association between chronic obstructive pulmonary diseases (COPD), chronic bronchitis and asthma and total suspended particles (TSP) in Study- Part 1 (case and control data representing long-term effects) and in Study- Part 2 (daily hospital admission data as short-term effects which are analyzed with generalized additive models). In Study-Part 1, TSP was identified as a risk factor for COPD in the exposed population, with relative humidity as a protective factor against asthma. Population age's distribution and urban environment resulted as confounding factors. In Study- Part 2, adverse effects of TSP were revealed for chronic bronchitis. Seasons and days of the weeks resulted as important confounding factors. A weak adverse effect of TSP upon chronic bronchitis incidence and hospitalization (disease exacerbation) was identified, at a specific age, 15-64 years, in both study periods. As a conclusion, in the investigated area (Drobeta Turnu-Severin), the respiratory health effects of particles are substantial and modified by climate parameters and seasonality.

Source: http://www.naun.org/main/NAUN/energyenvironment/2011.html

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Temperature

Air Pollution: Particulate Matter

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Rural, Urban

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Romania

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma, Chronic Obstructive Pulmonary Disease, Other Respiratory Effect

Respiratory Condition (other) : chronic bronchitis

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified